

Amendment to the claims

1 Please cancel claim 12, and amend claims 1, 10, 13, 26 and 28 as shown in the
2 following listing of claims. This listing of claims will replace all prior versions, and
3 listings, of claims in the application.

- 1 1. (currently amended) An apparatus for re-ordering video data for a display,
2 comprising:
3 a) a first transpose means for receiving video data and performing a first transpose
4 process on such video data to create partially re-ordered video data;
5 b) a means for storing the partially re-ordered video data; and
6 c) a second transpose means for reading the partially re-ordered video data and
7 performing a second transpose process on such partially re-ordered video data to create
8 fully re-ordered video data,
9 wherein the first and second transpose means are configured to perform the first
10 and second transpose processes to convert the received video data to the fully re-ordered
11 video data that is a transposed video data of the received video data, the fully re-ordered
12 video data being compatible to a transposed scanning technique for driving the display,
13 and wherein the second transpose means includes:
14 a means for addressing RGB video data stored in the storing means;
15 a means for reading the RGB video data stored in the storing means to created
16 fully re-ordered RGB video data;
17 a means for communicating the fully re-ordered RGB video data to downstream
18 modules of a display processing system;
19 a means for addressing R, G, and B separation video data stored in the storing
20 means;
21 a means for reading the R, G, and B separation video data stored in the storing
22 means;
23 a means for re-ordering the R, G, and B separation video data into fully re-ordered
24 R, G, and B color bar video data having consecutive downwardly scrolling R, G, and B
25 scan lines; and

26 a means for communicating the fully re-ordered R, G, and B color bar video data
27 to the downstream modules of the display processing system.

1 2. (original) The apparatus as set forth in claim 1 wherein the first and second
2 transpose means include:
3 one or more programmable hardware blocks.

1 3. (original) The apparatus as set forth in claim 1 wherein:
2 the first transpose means includes a first programmable processor and the second
3 transpose means includes a second programmable processor, such that the apparatus is
4 programmable for any of a plurality of display formats.

1 4. (original) The apparatus as set forth in claim 3 wherein the first and second
2 processors are fabricated on a common substrate (S).

1 5. (original) The apparatus as set forth in claim 4 wherein the storing means includes
2 computer memory which is fabricated on the common substrate.

1 6. (previously presented) The apparatus as set forth in claim 4 wherein the storing
2 means includes a separate IC that is electrically connected with the first and second
3 programmable processors.

1 7. (original) The apparatus as set forth in claim 3 wherein the first and second
2 processors are programmable to re-order video data for two or more types of displays
3 selected from the group consisting of a transpose scan CRT display, an LCOS device, a
4 PDP, a monochrome DMD, and a color DMD.

1 8. (previously presented) The apparatus as set forth in claim 1, the storing means
2 including:
3 a means for storing at least two consecutive frames of the partially re-ordered
4 video data.

1 9. (previously presented) The apparatus as set forth in claim 8 wherein the second
2 transpose means includes a processor programmed to read the partially re-ordered video
3 data associated with a first frame from the storing means while the first transpose means
4 writes the partially re-ordered video data associated with a second frame to the storing
5 means.

1 10. (currently amended) The apparatus as set forth in claim 1, wherein the first
2 transpose means includes:
3 a means for receiving the RGB video data;
4 a means for writing the RGB video data to the storing means;
5 a means for separating RGB video data into separate R, G, and B video data; and
6 a means for writing the R, G, and B video data to the storing means.

1 11. (previously presented) The apparatus as set forth in claim 10, the storing means
2 including:
3 a means for storing at least one frame of the RGB video data; and
4 a means for storing at least one frame of the R separation video data, at least one
5 frame of the G separation video data, and at least one frame of the B separation video
6 data.

1 12. (canceled).

1 13. (currently amended) The apparatus as set forth in claim 1 [[12]], the reading
2 means including:
3 a means for identifying an operational configuration for the receiving means
4 based on a selected display.

1 14. (previously presented) The apparatus as set forth in claim 10, the receiving means
2 including:
3 a means for generating a plurality of sub-fields associated with a frame of the
4 received video data, wherein each sub-field includes sub-field video data associated with

1 the received video data; and a means for writing the sub-field video data for the plurality
2 of sub-fields to the storing means.

1 15. (previously presented) The apparatus as set forth in claim 14, the
2 generating means including:

3 a means for temporarily storing a predetermined amount of sub-field data
4 that is generated serially, wherein the writing means transfers the predetermined
5 amount of sub-field data from the temporary storing means to the storing means in
6 parallel.

1 16. (previously presented) The apparatus as set forth in claim 14, the storing
2 means including:

3 a means for storing the sub-field video data for the plurality of sub-fields.

1 17. (previously presented) The apparatus as set forth in claim 16, the reading
2 means including:

3 a means for addressing the sub-field video data for the plurality of sub-
4 fields in the storing means;

5 a means for reading the sub-field video data for the plurality of sub-fields
6 in the storing means to create a fully re-ordered sub-field video data; and

7 a means for communicating the fully re-ordered sub-field video data to
8 downstream modules of a display processing system.

1 18. (original) The apparatus as set forth in claim 14 wherein the sub-fields are
2 RGB sub-fields and the sub-field data is RGB sub-field data.

1 19. (previously presented) The apparatus as set forth in claim 14, the
2 generating means including:

3 a means for temporarily storing a predetermined amount of RGB sub-field
4 data that is generated serially, wherein the writing means transfers the
5 predetermined amount of RGB sub-field data from the temporary storing means to
6 the storing means in parallel.

1 20. (previously presented) The apparatus as set forth in claim 18, the storing means
2 including:

3 a means for storing the RGB sub-field video data for the plurality of RGB sub-
4 fields.

1 21. (previously presented) The apparatus as set forth in claim 20, the reading means
2 including:

3 a means for addressing the RGB sub-field video data for the plurality of RGB
4 sub-fields in the storing means;

5 a means for reading the RGB sub-field video data for the plurality of RGB sub-
6 fields in the storing means to create a fully re-ordered RGB sub-field video data; and

7 a means for communicating the fully re-ordered RGB sub-field video data to
8 downstream modules of a display processing system.

1 22. (previously presented) The apparatus as set forth in claim 10, the receiving means
2 including:

3 a means for generating a plurality of R separation sub-fields associated with a
4 frame of the R separation video data, wherein each R separation sub-field includes R
5 separation sub-field video data associated with the R separation video data;

6 a means for generating a plurality of G separation sub-fields associated with a
7 frame of the G separation video data, wherein each G separation sub-field includes G
8 separation sub-field video data associated with the G separation video data;

9 a means for generating a plurality of B separation sub-fields associated with a
10 frame of the B separation video data, wherein each B separation sub-field includes B
11 separation sub-field video data associated with the B separation video data; and

12 a means for writing the R separation sub-field video data for the plurality of R
13 separation sub-fields, the G separation sub-field video data for the plurality of G
14 separation sub-fields, and the B separation sub-field video data for the plurality of B
15 separation sub-fields to the storing means.

1 23. (previously presented) The apparatus as set forth in claim 22, the storing means
2 including:

3 a means for storing the R separation sub-field video data for the plurality of R
4 separation sub-fields;
5 a means for storing the G separation sub-field video data for the plurality of G
6 separation sub-fields; and
7 a means for storing the B separation sub-field video data for the plurality of B
8 separation sub-fields.

1 24. (previously presented) The apparatus as set forth in claim 23, the reading means
2 including:

3 a means for addressing the R separation sub-field video data for the plurality of R
4 separation sub-fields in the storing means;

5 a means for reading the R separation sub-field video data for the plurality of R
6 separation sub-fields in the storing means to create fully re-ordered R separation sub-field
7 video data;

8 a means for communicating the fully re-ordered R separation sub-field video data
9 to downstream modules of a display processing system;

10 a means for addressing the G separation sub-field video data for the plurality of G
11 separation sub-fields in the storing means;

12 a means for reading the G separation sub-field video data for the plurality of G
13 separation sub-fields in the storing means to create fully re-ordered G separation sub-field
14 video data;

15 a means for communicating the fully re-ordered G separation sub-field video data
16 to downstream modules of a display processing system;

17 a means for addressing the B separation sub-field video data for the plurality of B
18 separation sub-fields in the storing means;

19 a means for reading the B separation sub-field video data for the plurality of B
20 separation sub-fields in the storing means to create fully re-ordered B separation sub-field
21 video data; and

22 a means for communicating the fully re-ordered B separation sub-field video data
23 to downstream modules of a display processing system.

1 25. (previously presented) The apparatus as set forth in claim 10, the receiving means
2 including:

3 a means for identifying an operational configuration for the receiving means
4 based on a selected display.

1 26. (currently amended) An integrated circuit for re-ordering video data to a selected
2 display format, the integrated circuit comprising:

3 a substrate;

4 a first programmable processor fabricated on the substrate and connected with
5 video input and programming terminals, the first programmable processor being
6 configured to perform a first transpose process on the video data to create partially
7 transposed video data ;

8 a second programmable processor fabricated on the substrate and connected with
9 video output and programming terminals, the second programmable processor being
10 configured to perform a second transpose process on the partially transposed video data
11 to create fully transposed video of the video data; and

12 a memory electrically connected with the first and second processors to have data
13 written into the memory from the first processor and read out of the memory by the
14 second processor,

15 wherein the fully transposed video data is compatible to a transposed scanning
16 technique for driving the display, and wherein the second programmable processor
17 includes:

18 a means for addressing RGB video data stored in the memory;

19 a means for reading the RGB video data stored in the memory to created fully re-
20 ordered RGB video data;

21 a means for communicating the fully re-ordered RGB video data to downstream
22 modules of a display processing system;

23 a means for addressing R, G, and B separation video data stored in the memory;

24 a means for reading the R, G, and B separation video data stored in the memory;

25 a means for re-ordering the R, G, and B separation video data into fully re-ordered
26 R, G, and B color bar video data having consecutive downwardly scrolling R, G, and B
27 scan lines; and

28 a means for communicating the fully re-ordered R, G, and B color bar video data
29 to the downstream modules of the display processing system.

1 27. (original) The integrated circuit as set forth in claim 26 wherein the
2 memory is fabricated on the substrate.

1 28. (currently amended) A method of converting video data from a first format
2 to a second format comprising:

3 programming a first processor with a first transform which transforms the
4 first format video data to an intermediate format data for storage in a memory; and
5 programming a second processor with a second transform which
6 transforms the intermediate format data from the memory into the second video
7 format,

8 wherein the second format video data is a transposed video data of the first
9 format video data, the second format video data being compatible to a transposed
10 scanning technique for driving the display, and wherein the method further
11 comprises:

12 addressing RGB video data stored in the memory;

13 reading the RGB video data stored in the memory to created fully re-
14 ordered RGB video data;

15 communicating the fully re-ordered RGB video data to downstream
16 modules of a display processing system;

17 addressing R, G, and B separation video data stored in the memory;

18 reading the R, G, and B separation video data stored in the memory;

19 re-ordering the R, G, and B separation video data into fully re-ordered R,
20 G, and B color bar video data having consecutive downwardly scrolling R, G, and
21 B scan lines; and

22 communicating the fully re-ordered R, G, and B color bar video data to the
23 downstream modules of the display processing system.

1 29. (previously presented) The method as set forth in claim 28 further including:
2 supplying the first format video data to the first processor;

3 transforming the supplied first format video data to the intermediate format data
4 with the first processor;
5 writing the intermediate format data to the memory;
6 reading the intermediate format data from the memory with the second processor;
7 and
8 transforming the intermediate format data to the second format video data.

1 30. (original) The method as set forth in claim 28 further including:
2 fabricating the first and second processors and the memory on a common
3 substrate.